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<p>(21) International Application Number: PCT/US98/07020</p> <p>(22) International Filing Date: 7 April 1998 (07.04.98)</p> <p>(30) Priority Data: 08/832,206 8 April 1997 (08.04.97) US</p> <p>(71) Applicant (for all designated States except US): KCL CORPORATION [US/US]; Hodell & Prospect Streets, Shelbyville, IN 46176 (US).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): THIEMAN, Ronald, G. [US/US]; 325 Wellington Parkway, Noblesville, IN 46060 (US). O'CONNOR, Thomas, P. [US/US]; 379 West Broadway, Shelbyville, IN 46176 (US).</p> <p>(74) Agents: EMHARDT, C., David et al.; Woodard, Emhardt, Naughton, Moriarty & McNett, Bank One Center/Tower, Suite 3700, 111 Monument Circle, Indianapolis, IN 46204 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i></p>	
<p>(54) Title: TAMPER EVIDENT SLIDER ZIPPER</p> <p>(57) Abstract</p> <p>A plastic film bag (11) includes a reclosable closure (21) which is opened and closed by a slider (35). The bag includes a tamper evident sheet (40' and 50) closing off the bag mouth. Alternatively the tamper evident means consists of a hood (60) which encloses the slider (35) and reclosable closure (70).</p> <div data-bbox="990 1092 1364 1869"> <p>The diagram shows a cross-section of a plastic film bag. At the top, there is a reclosable closure (21) with a slider (35). A tamper evident sheet (40) is shown closing off the bag mouth. The bag is labeled with various reference numerals: 11 for the bag body, 12 for the side wall, 13 for the bottom, 22 for the top edge, 25 for the slider, 40 for the tamper evident sheet, and 50 for the bag mouth.</p> </div>		

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TAMPER EVIDENT SLIDER ZIPPER**Field of the Invention:**

The present invention relates to reclosable plastic bags with slider zippers and tamper evidence.

5 **Description of the Prior Art:**

Various inventions have been made in the area of reclosable plastic bags with slider zippers. For example the Herrington U.S. Patent 5,007,143 shows a zipper profile which is opened and closed by a slider that is grasped by the user for opening and closing the bag. It is desirable in certain situations to provide tamper evidence to the user of a reclosable bag. The Hustad et al. U.S. Patent 5,456,928 is an example of a patent disclosing a reclosable bag for use with food products which has tamper evident means incorporated therein. There are certain situations, for example, where a slider zipper reclosable bag is used to contain a product that is being marketed and it is also desirable to provide tamper evidence.

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SUMMARY OF THE INVENTION

One embodiment of the invention might include a plastic film bag having a pair of side walls which are secured to one another and define a mouth of the bag. There is
5 provided a reclosable fastener extending along the mouth of the bag and secured to the side walls. The fastener includes a pair of flexible fastening strips secured to the side walls and including reclosable interlocking rib and groove profile elements on the respective strips. A slider
10 straddles the fastener for opening and closing the fastener. The slider includes a depending separator extending between the flexible plastic strips. There is also provided a sheet of plastic film closing the mouth of the bag which sheet is capable of rupture to provide access
15 and tamper evidence.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is front elevational view of a reclosable plastic bag including the tamper evident zipper slider of the present invention.

5 FIG. 2 is a fragmentary perspective view of a portion of the structure of FIG. 1.

FIG. 3 is a vertical section taken along the line 3-3 of FIG. 2 in the direction of the arrows.

10 FIG. 4 is a vertical section taken along the line 4-4 of FIG. 2 in the direction of the arrows.

FIG. 5 is a bottom plan view of the slider of the present invention.

FIG. 6 is a section taken along the line 6-6 of FIG. 5 in the direction of the arrows.

15 FIG. 7 is a vertical section similar to FIG. 3 of an alternative embodiment of the present invention.

FIG. 7A is a front elevation similar to FIG. 1 of the alternative embodiment of the present invention.

20 FIG. 8 is a vertical section taken through the zipper slider and the bag of FIG. 1.

FIG. 9 is an enlarged fragmentary view similar to FIG. 8.

FIG. 10 is a view similar to FIG. 8 of an alternative embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring now to the drawings in detail, a plastic bag 11 is illustrated which consists of a pair of side walls 12 and 13 which are connected together at the bottom and at the sideward edges 16 and 17 of the bag. The connection at the bottom 15 may be merely by folding a single sheet of plastic to produce the two side walls 12 and 13 or may be by actual melting and cutting or adhering the two side walls together by adhesive. The side edges 16 and 17 are frequently formed by melting the two side walls together and then by cutting apart from the adjacent side walls of further bags being produced. The two side walls 12 and 13 define a mouth 20 of the bag along which a reclosable fastener 21 extends. The fastener includes a pair of flexible plastic strips 22 and 25 which are secured to the side walls 12 and 13 and include reclosable interlocking rib and groove profile elements 26, 27, 30 and 31. The reclosable fastener further includes a flange 32 which functions to close over the top of the fastener when it is in closed position.

A slider 35 is arranged to straddle the fastener 21 for opening and closing the fastener. The slider 35 has a fixed separator member 36 which extends down between the profile elements 26 and 30 for the purpose of separating them and

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opening the fastener when the slider is moved rightwardly as viewed in FIG. 2. FIG. 3 shows the slider section taken along the line 3-3 of FIG. 2 and shows the profile elements in open condition. When the slider is moved leftwardly as
5 viewed in FIG. 2 the slider functions to close the profile elements and to connect them as shown in FIG. 4. The connection occurs by reason of the walls 37 of the slider squeezing the profile elements together.

The slider is retained on the fastener elements by
10 shoulders 40 and 41 which are also formed on the fastener elements. The slider has inwardly projecting flanges 38 which engage the shoulders 40 and 41 to retain the slider on the fastener.

Referring to FIG. 8 the reclosable fastener has formed
15 homogenously and coextensively therewith a sheet of plastic 40'. This sheet of plastic 40' may be extruded along with the fastener elements 22 and 25 but has a somewhat less thick construction than the strips 22 and 25 and particularly the web portion thereof 41 and 42.

20 It is intended that the present bag be used frequently in situations where the bag is filled at the factory with a product and then is marketed to the consumer. The consumer then buys the bag and is reassured that it has not been
25 tampered with because the closure 40 is in place and needs to be ruptured before the consumer can use the contents of the bag. If the consumer does not wholly consume the contents he can then reclose the bag and use it further to contain the partially filled bag.

An alternative embodiment of the reclosable fastener of
30 FIG. 8 is shown in FIG. 10 and involves a tamper evidence closure 50 that extends between the walls or webs 41' and 42' of the reclosable fastener elements 22' and 25'. The construction of FIG. 10 is extruded in a similar fashion to the construction of FIG. 8.

35 Still another alternative embodiment of the invention is

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illustrated in FIGS. 7 and 7A. The reclosable closure and slider are identical to those above described except that the sheet 40 is eliminated. In place of the sheet 40 the tamper evident slider bag of FIG. 7 has a sheet 60 which forms a hood that covers and surrounds the reclosable closure 70 and the slider 71 of the bag of FIGS. 7 and 7A. In certain situations, the embodiment of FIG. 7 will be provided with perforations 72 which facilitate removing the tamper evident sheet 60. If desired perforations may also be provided in the embodiment of FIG. 8 such as for example at the location 61.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

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What is claimed is:

1. In a plastic film bag including a reclosable fastener extending along the mouth of the bag, a slider straddling the fastener for opening and closing the fastener, the fastener comprising a pair of flexible plastic strips on facing side walls of the bag and having reclosable interlocking rib and groove profile elements on the respective strips, the improvement comprising tamper evident means mounted on said bag, said tamper evident means including a sheet of plastic film closing the mouth of said bag.

2. A plastic film bag comprising a pair of side walls which are secured to one another and define a mouth of the bag, a reclosable fastener extending along the mouth of the bag and secured to said side walls, said fastener including a pair of flexible plastic strips secured to said side walls and including reclosable interlocking rib and groove profile elements on the respective strips, a slider straddling the fastener for opening and closing the fastener, said slider including a depending separator extending between said flexible plastic strips, and a sheet of plastic film closing the mouth of said bag, said sheet being capable of rupture to provide access and tamper evidence.

3. The plastic film bag of claim 2 wherein said side walls have side edges and a bottom, said side edges being secured to one another and terminating at said mouth, said sheet being inboard of said mouth and secured between said side edges.

4. The plastic film bag of claim 2 wherein said sheet of plastic film enclosed said slider and reclosable fastener.

5. The plastic film bag of claim 2 wherein said sheet of plastic film has a line of perforations therein
5 facilitating rupture of said sheet.

6. The plastic film bag of claim 2 wherein said sheet is integral with said pair of reclosable plastic strips.

7. The plastic film bag of claim 2 wherein said sheet is coextensive with said pair of reclosable plastic strips.

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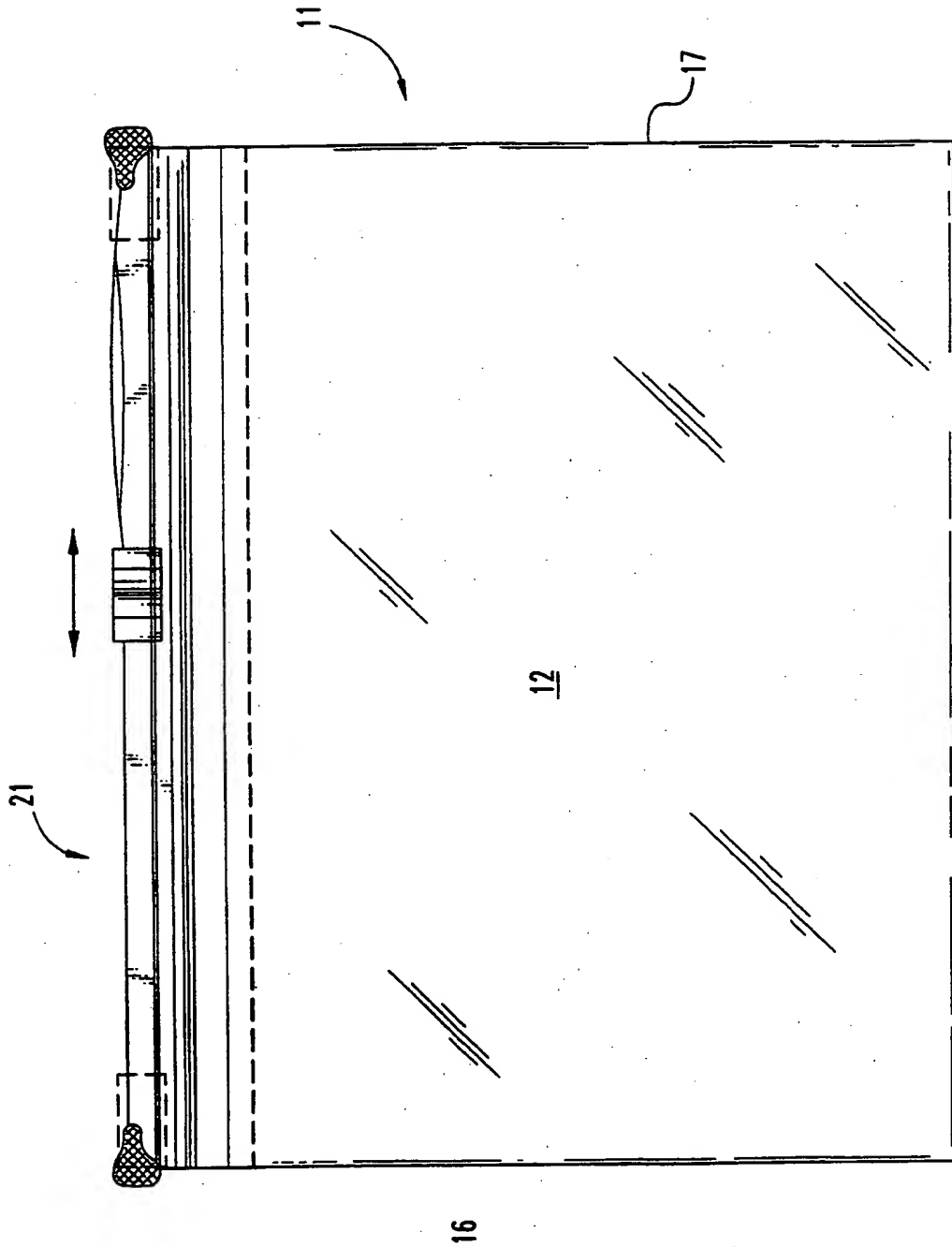


Fig. 1

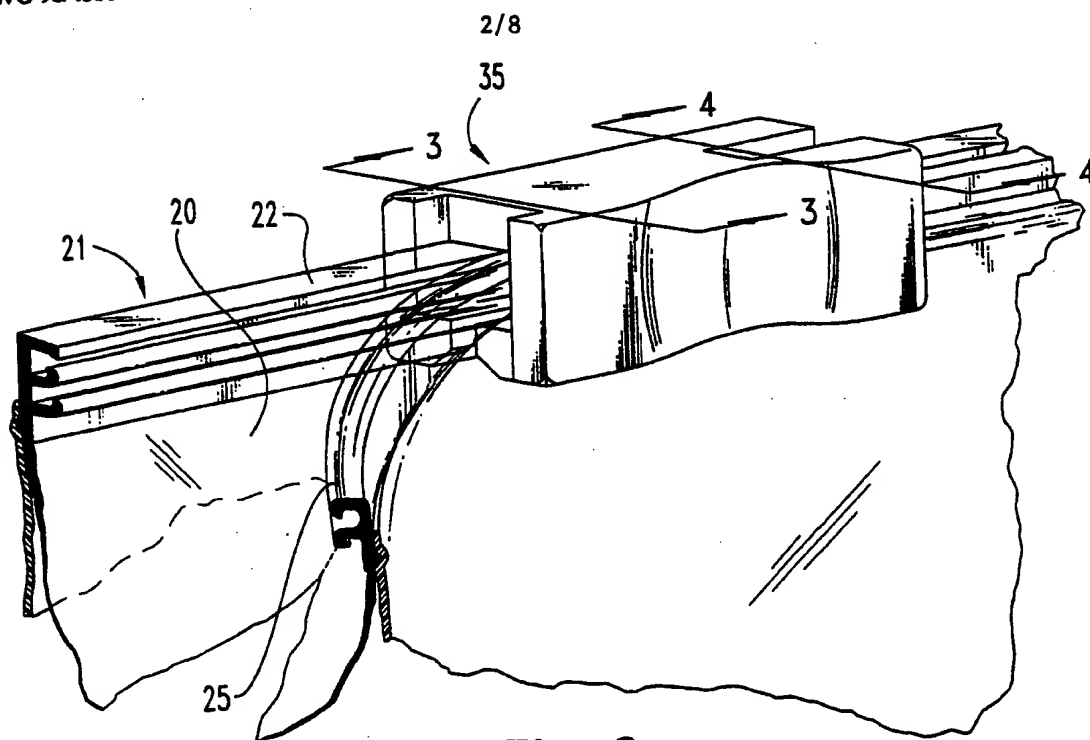


Fig. 2

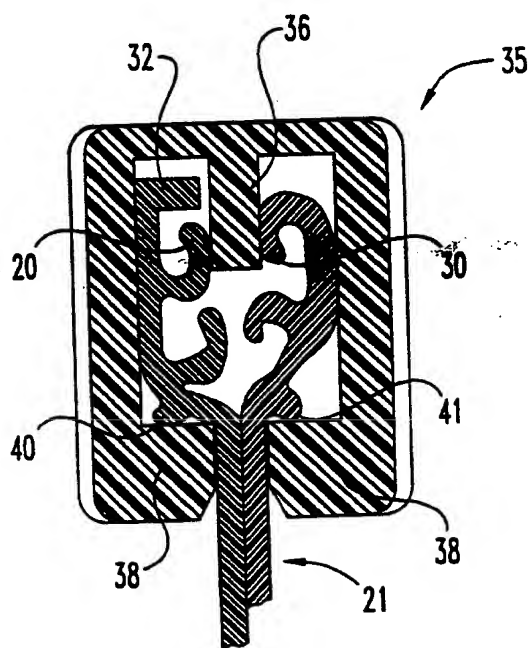


Fig. 3

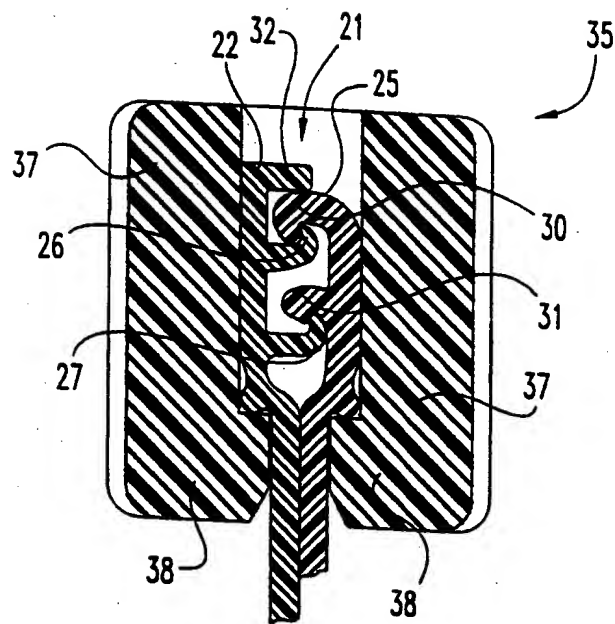
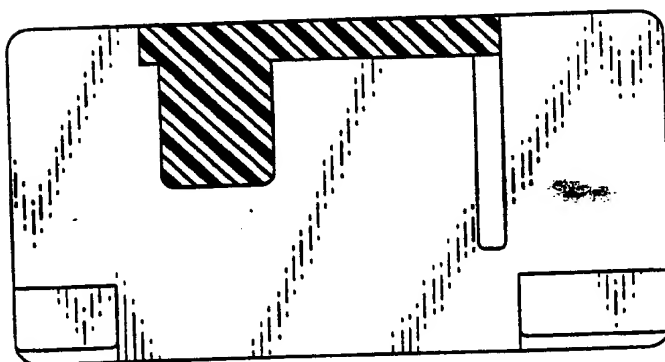
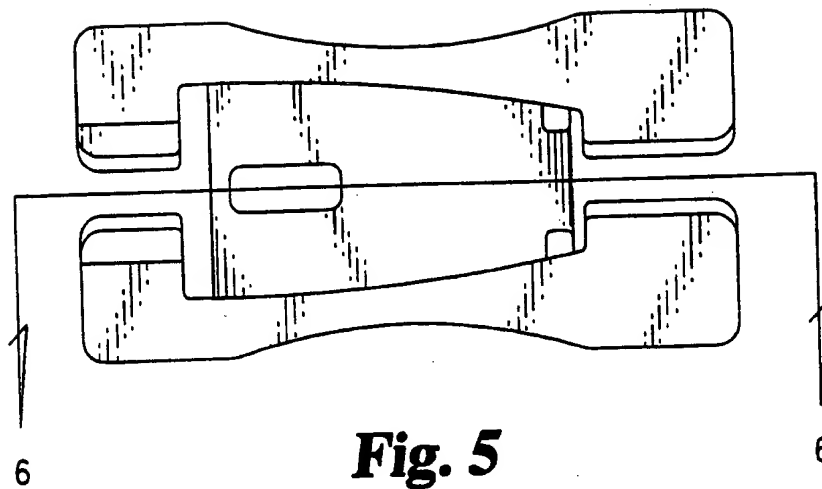
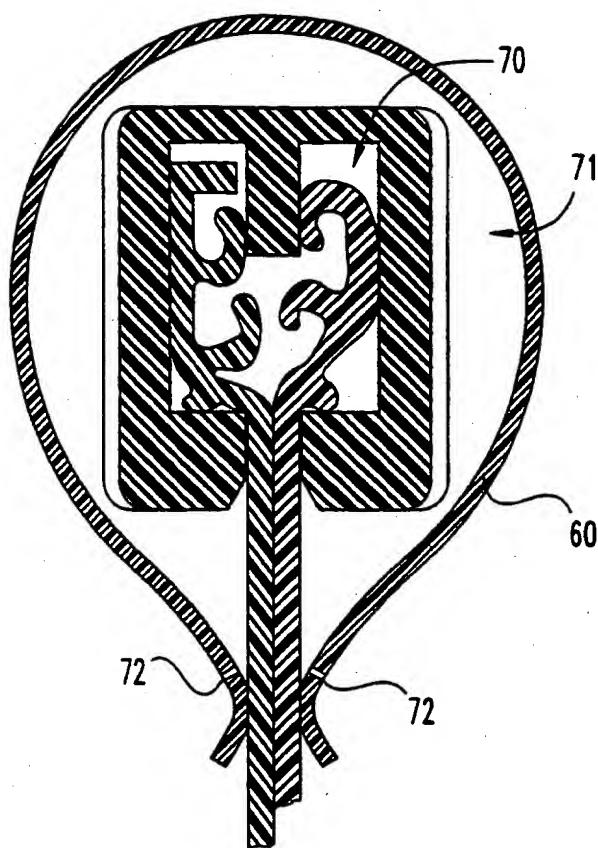
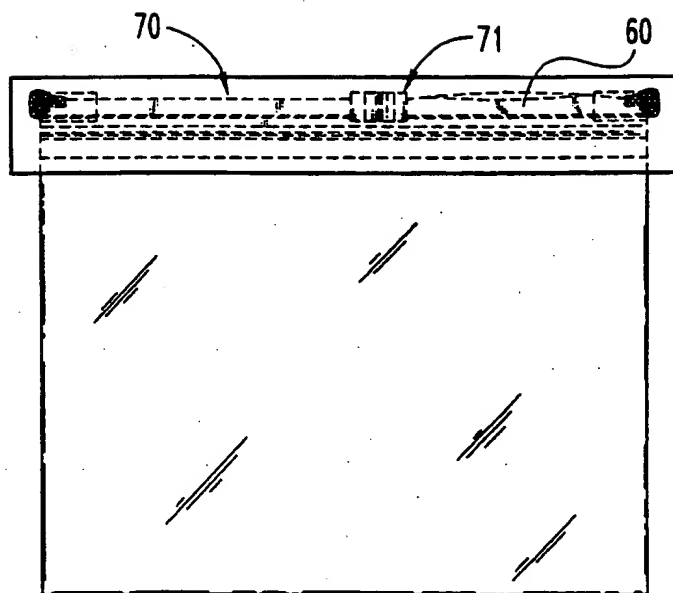
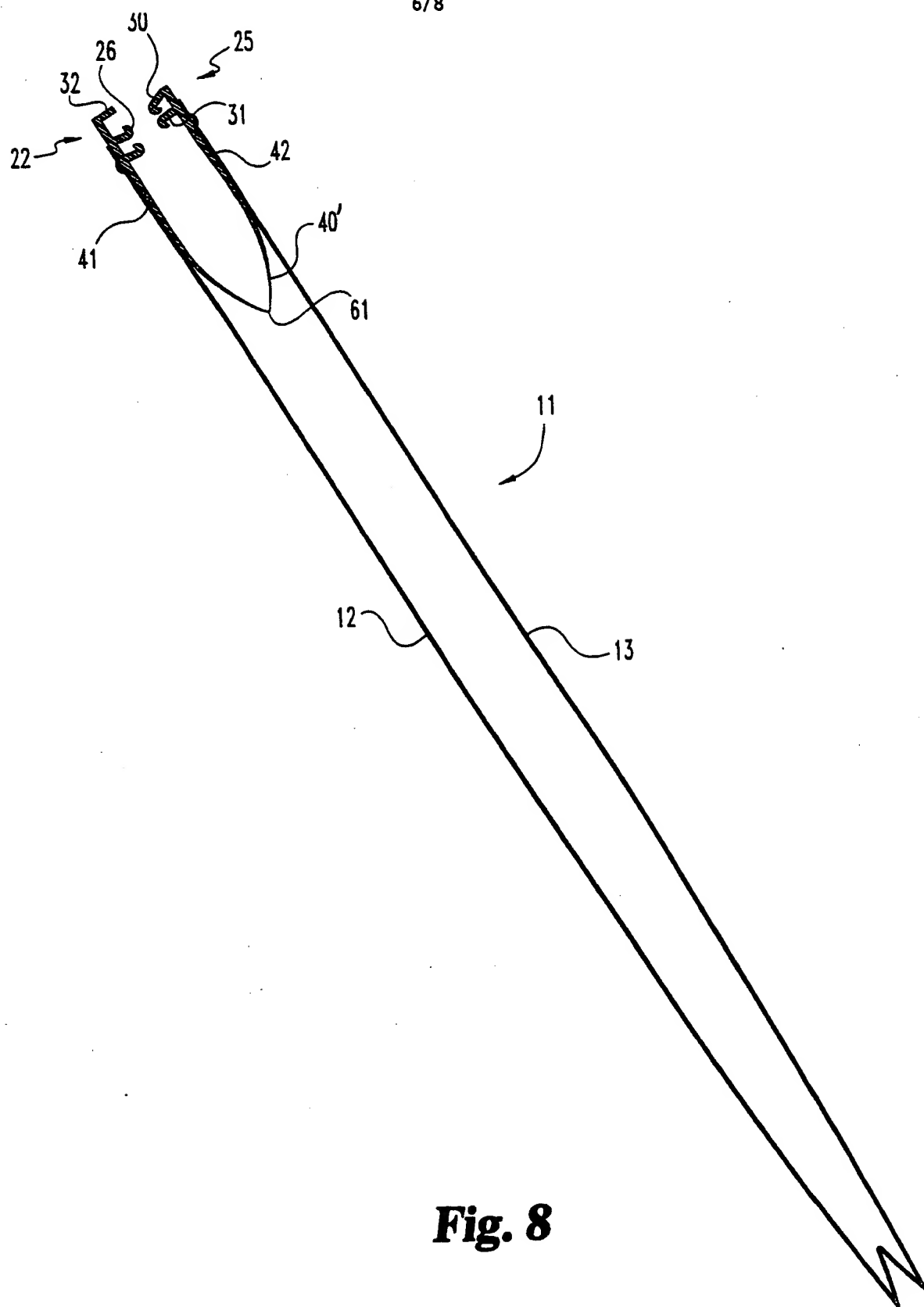


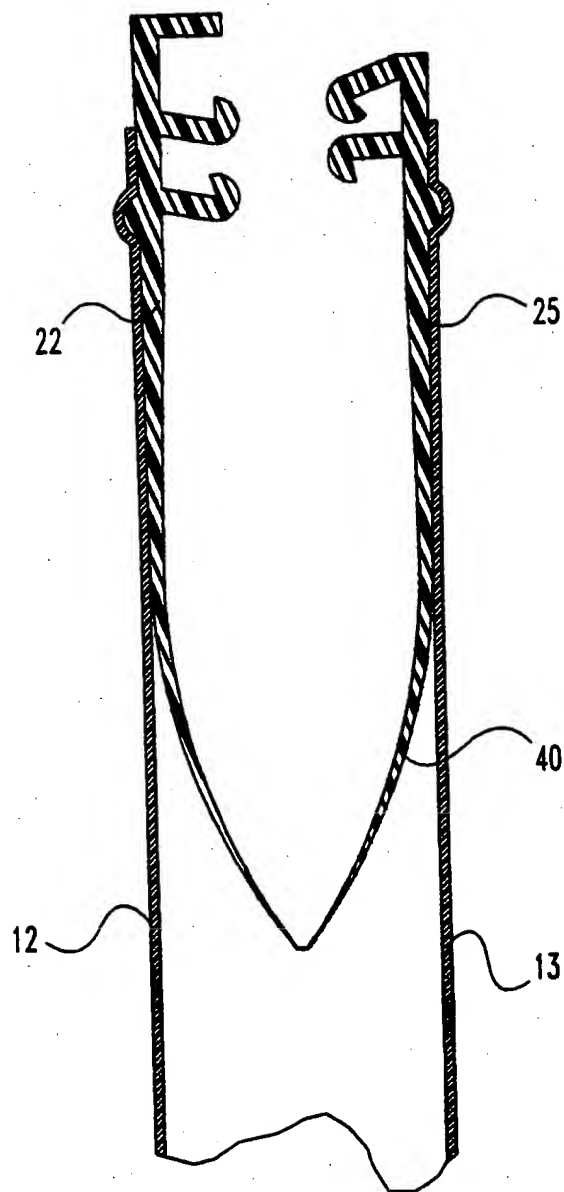
Fig. 4

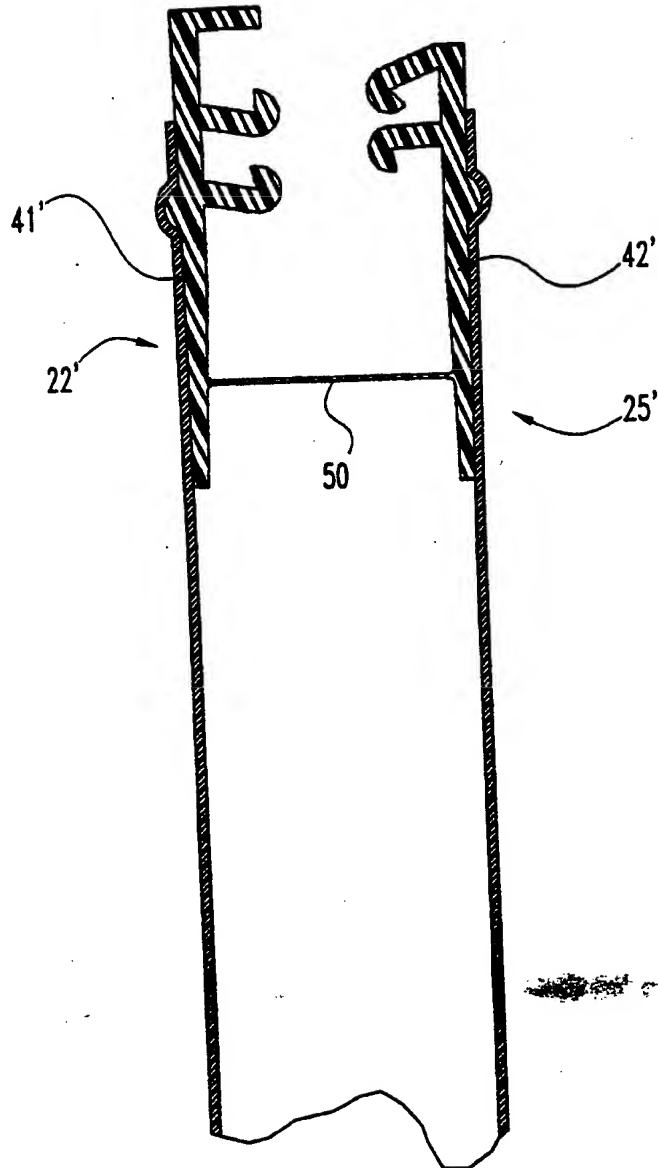
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**Fig. 7****Fig. 7A**

**Fig. 8**

**Fig. 9**

**Fig. 10**

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/07020

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :B65D 33/14

US CL :383/5

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 383/5,63-65,69,78,81,93,97,203,207; 24,400,587,30.5R,30.5P

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,211,482 A (TILMAN) 18 MAY 1993, see entire document.	1,2
X	US 5,713,669 A (THOMAS et al) 03 FEBRUARY 1998, see entire document.	1,2,4-6
Y	US 3,054,434 A (AUSNIT et al) 18 SEPTEMBER 1962, see entire document.	1-3,5-7
Y	EP 456,277 A (VAN ERDEN et al) 13 NOVEMBER 1991, see entire document	1-3,5-7

☐ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

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